

## Grades PreK–2: Algebra

### **STANDARD** I. Understand patterns, relations, and functions.

#### **EXPECTATION** A. Sort, classify, and order objects by size, number, and other properties.

PreK	K	1	2
1. Recognize patterns in their environment by color, shape, and size.	1. Sort and classify objects by one attribute (size, shape, and color).  2. Sort and classify objects by more than one attribute (size, shape, and color).	1. Sort and classify concrete objects according to one or more attributes including color, size, shape, and thickness.  2. Sort and classify objects by size, quantity, and other properties.	
2. Order three objects by size.	3. Order objects by size, quantity, and other properties.	*2. Sequence random numerals between 1 and 100.	1. Sequence random numerals between 1 and 1,000.

#### **EXPECTATION** B. Recognize, describe, and extend patterns such as sequences of sounds and shapes or simple numeric patterns and translate from one representation to another.

PreK	K	1	2
1. Recognize a two-part pattern and extend.	*1. Identify, describe, and extend a repeating relationship (pattern) found in common objects, sounds, and movements.  2. Construct two-part and three-part patterns.	*1a. Using symbols and objects, identify and create and extend a wide variety of patterns 1b. Use letters to represent a created pattern (e.g., ABC, ABC).  *2. Use numerical patterns to skip count by 2s, 5s, and 10s.	1. Create, extend, and label a wide variety of patterns, orally and in writing, by using symbols and objects.  *2. Skip count by any numeral (1–10) using mental mathematics, paper and pencil, hundreds charts, calculators, and concrete objects (starting at any numeral).

**EXPECTATION**

C. Analyze how both repeating and growing patterns are generated.

PreK	K	1	2
1. Determine a rule for repeating and growing patterns.	1. Create a repeating or growing pattern.	1. Create and describe a general rule for a growing pattern and a repeating pattern, both orally and in writing.	
	2. Identify missing numerals and elements in a pattern or sequence.		

**STANDARD**

II. Represent and analyze mathematical situations and structures using algebraic symbols.

**EXPECTATION**

A. Illustrate general principles and properties of operations, such as commutativity, using specific numbers.

PreK	K	1	2
	1. Using concrete materials, construct addition and subtraction models.	*1. Identify inverse relationships between addition and subtraction facts (fact families).	

**EXPECTATION**

B. Use concrete, pictorial, and verbal representations to develop an understanding of invented and conventional symbolic notations.

PreK	K	1	2
	*1. Use language such as <i>less than, more than, or the same number as</i> to describe the relative sizes of sets of concrete objects.	*1. Recognize that the equals sign (=) indicates that the quantities on each side are equivalents. $(\underline{\quad} + 2 = 5; 3 + 6 = \underline{\quad})$ .	*1. Use symbolic notation to represent a statement of equality $(\underline{\quad} + 2 = 5; 3 + 6 = \underline{\quad})$ .

**STANDARD**      III. Use mathematical models to represent and understand quantitative relationships.

**EXPECTATION**    A. Model situations that involve the addition and subtraction of whole numbers, using objects, pictures, and symbols.

PreK	K	1	2
	*1. Combine two sets of objects and count the result.	1. Use concrete and pictorial models to develop an understanding of the concepts of addition and subtraction of whole numbers.	*1. Use concrete and pictorial models to develop an understanding of the concepts of addition, subtraction, multiplication, and division with whole numbers.
	2. Given a set of objects, remove some and then count the result.		

**STANDARD**      IV. Analyze change in various contexts.

**EXPECTATION**    A. Describe qualitative change, such as a student's growing taller.

PreK	K	1	2
		1. Describe the change in one attribute over time.	1. Compare and contrast the attribute changes over time in two or more qualities.

**EXPECTATION**    B. Describe quantitative change, such as a student's growing two inches in one year.

PreK	K	1	2
		1. Compare a wide variety of measurements over time (e.g., students' heights, plant growth).	1. Compare and contrast the quantitative changes over time in two or more quantities.